

EXHIBIT 2

EXPERT REBUTTAL REPORT OF PETER KELLER

January 25, 2023

CONFIDENTIAL

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1. Introduction

1.1. Qualifications

1. I submitted a report for this matter on November 9, 2022 (my “Affirmative Report”). In that report I describe my qualifications, which have not meaningfully changed as of my submission of this rebuttal report. I have appended my qualifications to this report as Appendix A.
2. My hourly rate remains \$665 per hour. My fee is not contingent on my opinions or the outcome of this litigation.
3. The materials upon which I have relied are listed in Appendix B.

1.2. Assignment and Summary of Conclusions

4. I submitted my Affirmative Report on November 9, 2022, in support of Defendants’ truth-on-the-market defense. I have been asked by Cravath, Swaine & Moore, counsel for Defendants, to consider certain statements or opinions regarding public statements in reports submitted on November 9, 2022, by Plaintiffs’ geology expert, Robert Merrill (the “Merrill Report”), Plaintiffs’ damages expert, Bjorn Steinholt (the “Steinholt Report”), and Plaintiffs’ accounting expert, D. Paul Regan (the “Regan Report”).
5. First, I address the Merrill Report. I discuss how observations in the Merrill Report support the conclusion in my Affirmative Report that investors would have understood Shenandoah to be a geologically complex and high-risk drilling environment. Dr. Merrill confirms that it was widely known that Shenandoah is structurally complex, which can create challenges for designing a commercial development plan. I also respond to assertions in the Merrill Report that certain statements were allegedly misleading. I explain

that Merrill mischaracterizes the nature of these statements; when read in context, these statements were not misleading to investors.

6. Second, I respond to assertions in the Steinholt Report that certain statements were allegedly misleading because Anadarko omitted information and explain why the statements were not misleading to investors. Specifically, Steinholt takes statements out of context, fails to conduct a thorough analysis of Anadarko's public statements, and exaggerates the importance of disclosing detailed information about the Shenandoah appraisal project. In fact, Mr. Steinholt testified that he did not evaluate the materiality of the pressure data from Shen-3, characterizing the issue as too technical for him.¹
7. Third, I respond to Mr. Regan's conclusion that Anadarko's alleged failure to properly account for and expense the cost of drilling Shen-3 as of December 31, 2014, was material. I do so from the perspective of investors. Specifically, I explain that the decision to write off a particular well depends on internal company policy, which differs among companies, and that investors are concerned with whether a field will be developed as opposed to the accounting decision regarding one of many appraisal wells. I also demonstrate that the statements about Shenandoah highlighted in the Regan Report were not misleading.
8. As detailed in the below sections, the Merrill, Steinholt, and Regan Reports fail to show that Anadarko improperly withheld information or communicated information that misled investors with respect to the status and expectations of Shenandoah.
9. Based on my review, there is nothing in Dr. Merrill's, Mr. Steinholt's or Mr. Regan's reports that changes my prior conclusions.

¹ Deposition of Bjorn Steinholt, December 21, 2022, 76:9–77:11.

2. Rebuttal to the Merrill Report

10. **Conclusion A: The Merrill Report confirms that investors understood that deepwater drilling involves a significant amount of uncertainty and that Shenandoah in particular was geologically complex and high-risk.**
11. Deepwater drilling is a high-risk business subject to significant uncertainty, and any decision to invest in and develop an oil field depends on many factors, including the results from each appraisal well, prevailing costs of development, prevailing oil prices, developing technology, and any asset's position within the company's entire portfolio. Investors understood this to be particularly true of Shenandoah, which was geologically complex and had a high-risk drilling environment as an offshore, deepwater field in the Gulf of Mexico.
12. In my Affirmative Report, I stated: "[I]nvestors understand that oil and gas production, especially deep-water exploration, is risky and faces substantial uncertainties" and that "exploration in deepwater Gulf of Mexico presents additional challenges" because of its depth and complexity.² In particular, I noted that "[t]he deepwater Gulf of Mexico is a geologically complex environment with multiple subsurface faults that can limit the recovery of reserves . . . so the Shenandoah field may be faulted or may not have as large of an areal extent as initially hoped."³
13. In discussing the region, Dr. Merrill confirms that it is commonly known that the region is structurally complex, which can create challenges for designing a commercial development plan:

² Affirmative Report § 4.1.4; ¶ 69.

³ *Id.* ¶¶ 69, 254.

- a. "The Shen wells drilled by Anadarko were in water depths of about 5,700 feet to subsurface depths exceeding 30,000 feet. High temperatures and high pressures make drilling in this environment difficult, and drilling costs are high."⁴
- b. "Today, we find sedimentary subbasins isolated by vertical salt diapirs feeding the salt canopy. Shen is one of these subbasins. In these subbasins, one would expect to find variable sediment thickness across the basin away from turbidite channels, lateral pinching out of individual sands, faults, fractures, and deformation bands caused by differential movement within the sediment column."⁵ Dr. Merrill testified that he would know that Shenandoah is one of these subbasins based on his general "regional understanding of the geology of the Gulf of Mexico" alone.⁶
- c. "This trend is in the 'Deepwater GOM,' a geological province characterized by complex structures caused by rapid sediment deposition and mobile salt intrusions. With sediment loading, salt from deep in the basin flowed vertically and spreads laterally, forming the Sigsbee salt canopy, which now blankets the Subsalt province. The interaction of these two features creates complex petroleum systems[.]"⁷ Dr. Merrill testified that his "regional knowledge would have expected complex structures" in the Shenandoah field.⁸
- d. "As a geologist, I would expect that in the geologic environment dominated by salt evacuation basins such as the Shen basin, vertical salt movement through salt feeders

⁴ Merrill Report ¶ 24.

⁵ *Id.* ¶ 29.

⁶ Deposition of Robert Merrill, December 7, 2022, 94:17-95:1.

⁷ Merrill Report ¶ 30.

⁸ Deposition of Robert Merrill, December 7, 2022, 99:10-11.

and subsequent development of a salt canopy would fracture the existing rock volume beneath the salt canopy. The expected result would be dominated by radial faults away from the salt feeders and possibly some concentric faults caused by salt canopy expansion.”⁹ Dr. Merrill testified that this understanding was “based upon [his] understanding of the regional geology” as well as his “understanding of [] evaporite sequences.”¹⁰

- e. “Thinning on the basin margin, away from the main sediment pathway, suggests stratigraphic variability is likely, as the sand beds accumulate on the margin of the central depositional axis. . . . [T]he sands deposited in turbidite fans have significant changes in thickness over relatively short distances. Projecting sand thickness to an undrilled location is highly uncertain in this environment. Because of the periodic nature of turbidite deposits, intervening shales serve as vertical seals to hydrocarbon migration, and lateral bed pinch-outs serve as potential traps. A trap essentially prevents oil from moving from one reservoir to another. The resulting compartmentalization requires more wells and makes it more costly to extract oil. These are fundamental principles that senior management at Anadarko would have been aware of at the time. Accordingly, Anadarko ignored this fundamental principle resulting in inaccurate assumptions about the subsurface.”¹¹
- f. “The total cost of injection and production wells at Shen was critical because of the high cost to drill and complete wells in the subsalt, high temperature, and high-pressure environment. It is not unusual for recognized structural complexity in a project to

⁹ Merrill Report ¶ 32.

¹⁰ Deposition of Robert Merrill, December 7, 2022, 101:8-12.

¹¹ Merrill Report ¶ 35.

increase with time in a given field because seismic data improves, and newly drilled wells intersect faults and fractures.”¹²

14. As the Merrill Report confirms, it was publicly known that the region would have faulting; the appraisal process was designed to test the extent of faulting. While investors would not have expected to obtain highly detailed, confidential data derived from appraisal drilling, they would have understood that a Gulf of Mexico project like Shenandoah would have uncertainties that would be revealed through the appraisal process. As discussed in my Affirmative Report, at each step, Anadarko affirmatively disclosed that it did not have enough information to reach a final investment decision.¹³
15. **Conclusion B: Investors understood that the statements about the Shenandoah basin being a “\$2-\$4 billion opportunity” constituted a highly preliminary estimate that could be affected by the appraisal.**
16. Dr. Merrill opines that Anadarko made “exaggerated statements about Shen’s likelihood of successful development, resource size, and value”¹⁴ by citing two presentations in March and April 2014 that estimated the Shenandoah basin was a “\$2-\$4 billion opportunity.”¹⁵ Dr. Merrill contends this estimate “set the public’s perception, including [his own], that [Shen] was a new ‘giant’ field.”¹⁶
17. As explained in paragraphs 136-152 of my Affirmative Report, investors did not understand the statements about “\$2-\$4 billion opportunity” to confirm any particular resource size.

¹² *Id.* ¶ 39.

¹³ For example, see Affirmative Report ¶¶ 203, 221, 249, 252, 281, 288.

¹⁴ Merrill Report ¶ 27.

¹⁵ *Id.* ¶ 21.

¹⁶ *Id.*

Rather, investors understood that Anadarko was still early in the appraisal process. Mr. Daniels explained this, stating: “So there’s a lot of resources there [in the Shenandoah basin], a lot of work needs to be done to commercialize that and to come forward with a path but we think it’s certainly one of the larger discovery areas in the Gulf of Mexico.”¹⁷

18. Making the basin commercial would depend upon the results of the appraisal process for all three prospects, as well as building a development plan. On May 6, 2014, when asked about Leyendecker’s statements at the AAPG event, Bob Daniels explained that “the Shenandoah mini-basin is a very significant discovery for us and has a great deal of potential there. But we have a lot of work to do to get that potential actually defined and then to put development plans around how we will bring the value forward to that.”¹⁸ He continued that they needed to roll together data from wells being drilled at Coronado, Yucatan, and Shenandoah “into our thinking about how we would bring this field forward” and “how this overall complex would be developed.”¹⁹
19. Dr. Merrill does not cite to evidence that suggests that investors understood “\$2-\$4 billion opportunity” to be anything other than a preliminary estimate that must be verified through then-subsequent appraisal work.
20. **Conclusion C: Investors understood before the start of the Class Period that the estimate of “\$2-\$4 billion opportunity” was no longer valid, given that this estimate applied to the**

¹⁷ Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, p. 52 (APC-01753577).

¹⁸ Anadarko Petroleum Corporation, Q1 2014 Earnings Call Transcript, May 6, 2014, p. 13 (APC-01751460 at 472).

¹⁹ *Id.*

whole Shenandoah basin, and following this statement, the Shenandoah basin's Coronado and Yucatan projects proved disappointing.

21. The estimate of "\$2-\$4 billion opportunity" applied to the whole Shenandoah basin. As explained below, by the beginning of the Class Period, following further appraisal results and disclosures about Yucatan and Coronado, investors would have understood that the estimate of "\$2-\$4 billion opportunity" for the Shenandoah basin was outdated. The preliminary estimate of the opportunity and any development plan would need to be adjusted in light of results indicating smaller reservoirs in these two prospects.
22. As the Merrill Report recognizes, the estimate of "\$2-\$4 billion opportunity" applied to the whole Shenandoah basin.²⁰ However, during his subsequent deposition, Dr. Merrill suggested that it was unclear whether the estimate applied to the basin or only the Shenandoah field.²¹ Dr. Merrill's testimony notwithstanding, Anadarko's reference to the basin is unambiguous. The March 2014 investor conference presentation clearly states, "Shenandoah Basin: ~\$2 - \$4 Billion Net Opportunity."²² The presentation during the April AAPG conference states, "Shenandoah Basin: Potential Giant Resource."²³ When describing the "\$2-\$4 billion opportunity," Mr. Leyendecker discussed why they "like the

²⁰ Merrill Report ¶ 21 ("Anadarko indicated the Shen *basin* was a \$2-\$4 billion opportunity." (emphasis added)).

²¹ Deposition of Robert Merrill, December 7, 2022, 51:16-52:16.

²² Anadarko Petroleum Company, Investor Conference Presentation, March 4, 2014, p. 83 (APC-01753996).

²³ American Association of Petroleum Geologists, "Discovery Thinking: The Gulf of Mexico Advantage," April 7, 2014, <https://www.aapg.org/videos/discovery-thinking/articleid/37096/ernie-leyendecker-discovery-thinking-the-gulf-of-mexico-advantage>.

Shenandoah Basin so well.”²⁴ Furthermore, both presentations specifically identified the Coronado and Yucatan fields in addition to the Shen field on that same slide.²⁵

23. Dr. Merrill appears to suggest that the distinction between “basin” and “field” was irrelevant because “Yucatan and Coronado were not going to be commercial.”²⁶ Aside from having no basis in the slide at issue, Dr. Merrill’s explanation relies on facts that were not known in March or April 2014, when both Yucatan and Coronado were still being appraised.²⁷
24. Dr. Merrill does not address how the early results of those appraisals, which were released after this statement but before the start of the Class Period, made the “\$2-\$4 billion opportunity” estimate stale.
25. First, in July 2014, Anadarko announced disappointing results at Coronado: “An appraisal well at the Coronado discovery reached total depth and did not find the Lower Miocene objective present.”²⁸ Investors understood that this impacted the outlook for the basin more broadly. For example, during the July 2014 earnings call, an analyst asked Anadarko whether the results of its most recent appraisal well at Coronado had “any implications for

²⁴ *Id.*, at 26:45.

²⁵ Anadarko Petroleum Company, Investor Conference Presentation, March 4, 2014, p. 83 (APC-01753996); American Association of Petroleum Geologists, “Discovery Thinking: The Gulf of Mexico Advantage,” April 7, 2014, <https://www.aapg.org/videos/discovery-thinking/articleid/37096/ernie-leyendecker-discovery-thinking-the-gulf-of-mexico-advantage>.

²⁶ Deposition of Robert Merrill, December 7, 2022, 69:6-11.

²⁷ Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, p. 48 (APC-01753577) (“We presently have wells drilling at Coronado—an appraisal well and at Yucatan—an appraisal and then we will in the second quarter spud the second Shenandoah appraisal well.”).

²⁸ Anadarko Petroleum Company, Q2 2014 Operations Report, July 29, 2014, p. 12.

the wider Shenandoah connectivity pieces.”²⁹ Gwin responded by stating that they “didn’t find the sand at all,” were considering a path forward, and were incorporating information into their broader plans for the basin.³⁰ During that same conference, an analyst noted that Coronado “seem[ed] noncommercial.”³¹ In October 2014, ConocoPhillips decided to stop appraising the Coronado prospect. Matthew Fox, ConocoPhillips’ Executive Vice President of Exploration and Production, said, “I mean, the original discovery well was very encouraging, but the first appraisal well that we drilled was intended to establish what the overall size was, and it was disappointing.”³² ConocoPhillips’ announcement came months after Anadarko’s statement regarding the Shenandoah basin’s potential.

26. Second, by October 2014, Yucatan also proved disappointing. The first appraisal well encountered “approximately 57 gross feet of pay”³³ and oil-water contact, suggesting a smaller reservoir.³⁴ Anadarko’s Q4 2014 Operations Report showed a significantly reduced reservoir estimate for Yucatan, with the appraisal well in a separate lease block from the now-estimated reservoir.³⁵
27. Anadarko had long discussed how its ownership in all three fields would be beneficial, and how it could achieve synergies from developing all three fields together. For example, Mr. Daniels explained that “controlling both Coronado and Shenandoah as an operator will

²⁹ Anadarko Petroleum Corporation, FQ2 2014 Earnings Call Transcript, July 30, 2014, p. 11.

³⁰ *Id.*

³¹ *Id.*

³² ConocoPhillips, Q3 2014 Earnings Call Transcript, October 30, 2014, p. 12.

³³ Anadarko Petroleum Company, Form 10-K for the Fiscal Year Period ended December 31, 2014, filed on February 20, 2015, p. 9 (APC-01751751).

³⁴ Anadarko Petroleum Corporation, Q2 2015 Earnings Call Transcript, July 29, 2015, p. 9.

³⁵ Anadarko Petroleum Company, Q2 2014 Operations Report, February 2, 2015, p. 12.

give [Anadarko] a lot more optionality and flexibility.”³⁶ Other statements about synergies follow:

- a. Arun Jayaram, JP Morgan Securities: “Ex tieback opportunities, which obviously work at a lower oil price, for deepwater drilling, what sort of price range do you think you need to kind of make that economically viable? Thanks.”

Bob Gwin: “Yeah. Great question, and I won’t answer it directly, because frankly, the answer varies, varies with the opportunity. Something like a Shenandoah is obviously a tremendous resource potential. But the development plan could be from a relatively smaller spar opportunity to maybe multiple spars to something bigger that you might pursue, because we have Coronado and Yucatan at the same mini basin that are tremendous kind of in situ tieback opportunities for the future.”³⁷

- b. John Powell Herrlin: “And then one for Bob Daniels on Shenandoah. How are you able to finagle a higher working interest [in Coronado]?”

Bob Daniels: “John, when you get into partnerships like this, especially when you have a 3 discovery complex and people have different interests on them, some people see the overall development differently. And so we were able to pay a disproportionate amount of the next appraisal well like Coronado to pick up that extra 20%. And we’re very pleased to take that and also to take over the operatorship because we see a lot of

³⁶ Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, p. 48.

³⁷ Anadarko Petroleum Corporation, J.P. Morgan Energy Equity Investor Conference Transcript, June 28, 2016, p. 9 (APC-01753717).

synergies with Shenandoah and Coronado together, and we also see the potential at Coronado is very significant.”³⁸

28. Market participants likewise made statements that demonstrated their understanding that Yucatan and Coronado and the synergies associated with developing these fields together with the Shenandoah field represented meaningful opportunities. Examples follow:

- a. Guggenheim: “Shenandoah Basin – Upcoming catalysts in the Gulf of Mexico include the Yucatan well in the Shenandoah Basin. With the successful Shenandoah appraisal well (1000 ft of net pay) and recently announced Coronado results (400 ft of pay), success at Yucatan could indicate the potential for the entire basin to be one continuous reservoir. Pending these results (which we expect in the next few weeks), future drilling may be directed towards appraisal of the three separate discoveries or perhaps a well (or two) towards the center of the basin to test lateral continuity and development options for the basin as a whole. If ultimately successful, the Shenandoah basin could prove to be one of the largest discoveries in GOM history.”³⁹
- b. Global Hunter Securities: “Takeaway: Mild positive. Following Shenandoah (300 to 1,000 net feet of pay) and Coronado (400 net feet of pay) this is APC’s third discovery in the GOM deepwater already in 2013; Phobos doesn’t look as massive as these first two, but represents an encouraging trend. Proximity to Lucius would mean cost savings if/when Phobos comes to development. Meanwhile, Yucatan should be down in 4-6 weeks – the well is testing the opposite side of the syncline that already showed

³⁸ Anadarko Petroleum Corporation, Q3 2013 Earnings Call Transcript, November 5, 2013, p. 17.

³⁹ Guggenheim, “APC – BUY - Increasing Price Target to \$115 on Multiple Exploration and Development Catalysts,” April 1, 2013, p. 2.

pay on the northern flank at Shenandoah. Should Yucatan be full to the spill point, it could comprise a potentially massive structure alongside Shenandoah.”⁴⁰

29. Dr. Merrill does not address how these changes impacted the “\$2-\$4 billion opportunity” estimate. Anadarko’s reminders about the early stage of the appraisal process proved prescient. The subsequent disappointment from Yucatan and Coronado would render the preliminary opportunity estimate stale by the beginning of the Class Period.
30. Finally, my review of analyst reports and commentary shows that analysts did not focus on or mention the estimate of “\$2-\$4 billion opportunity” either before or during the Class Period.
31. **Conclusion D: Dr. Merrill mischaracterizes Ms. Szabo’s statements regarding Shen’s “Miocene-like properties” and the “proven” and “probable” oil at Shenandoah and fails to show that her discussion of Shenandoah was misleading.**
32. Dr. Merrill takes issue with statements Shandell Szabo made during a May 24, 2016 UBS Global Oil and Gas Conference. First, he contends that Szabo “held out Shen as having excellent reservoir and fluid qualities to the public,” because Szabo described “Shen as having ‘Miocene-like properties, which means that the reservoir quality is very good.’”⁴¹ He quotes Ms. Szabo:

You’re looking at porosities of up to 25% here. You’re looking at permeabilities in the 100 millidarcy range. Some of the individual sands see 300, 400 millidarcies perm. And then the last thing you look at is the fluid property,

⁴⁰ Global Hunter Securities, “Another GOM success at Phobos,” April 25, 2013, p. 1.

⁴¹ Merrill Report ¶ 95.

since it's very light oil out here. So from the overall discovery, it's got everything that you're looking for.⁴²

33. Dr. Merrill takes issue with Ms. Szabo estimating “porosities of up to 25%,” contending that “the data showed the average porosity for Shen-2, Shen-3, and Shen-4 ST-1 was 20%.”⁴³ He also states that “Shen posed serious challenges as to tar and AOP.”⁴⁴
34. Dr. Merrill’s observation about porosities fails to identify an inconsistency between Ms. Szabo’s estimate and “the data.” Ms. Szabo’s estimate is for the high end of a range (“porosities of up to 25%”) while Dr. Merrill compares this high-end estimate to an average (“the data showed the average porosity [...] was 20%”). What Dr. Merrill suggests is an inconsistency is merely an improper comparison by Dr. Merrill. Market participants would recognize that “up to” signals the top end of a range, not an average.
35. In addition, even if market participants understood from Ms. Szabo’s statement that Shenandoah had average porosity of 25%—as opposed to “up to” 25%—this is not the type of difference that would meaningfully alter investors’ view on the field’s potential. 25% porosity versus 20% porosity is not enough of a difference to either confirm commerciality or condemn the project. Notably, Dr. Merrill fails to cite any evidence of the weight that market participants placed on this statement, including how it influenced their view of Shenandoah’s prospects.
36. Second, Dr. Merrill contends that “Ms. Szabo implied that there are proven and probable reserves in the Shen field” even though “the Shen wells with oil and natural gas indications

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

were not flow tested and could not be classified as ‘proven’ oil and gas reserves during the Class Period.”⁴⁵ Dr. Merrill quotes Ms. Szabo:

“[Y]ou can see the number five well up there on that cross-section, so you can see that lighter green color – we’re going to be able to turn that dark green. So the lighter green on there is the **probable**, and the darker green is the **proven**, and so we’re going to have the ability for that large area over there to go ahead and say, yes, that’s **proven**, so that’s tremendous for us.”⁴⁶

37. Dr. Merrill then comments:

Under the SPE reserves classification, **Proven** (on production – 1P), **Probable** (under development-2P), and **Possible** (planned for development-3P) refer to Discovered Commercial Reserves. On the other hand, resources are referred to as **Contingent Resources**, or Discovered Resources (development-pending, on hold, or not viable), and **Prospective Resources** (undiscovered). The use of **Proven** and **Probable** in the statement suggests that wells have flowed, been tested, and are under development, which overstates the confidence in the resource potential of Shen.⁴⁷

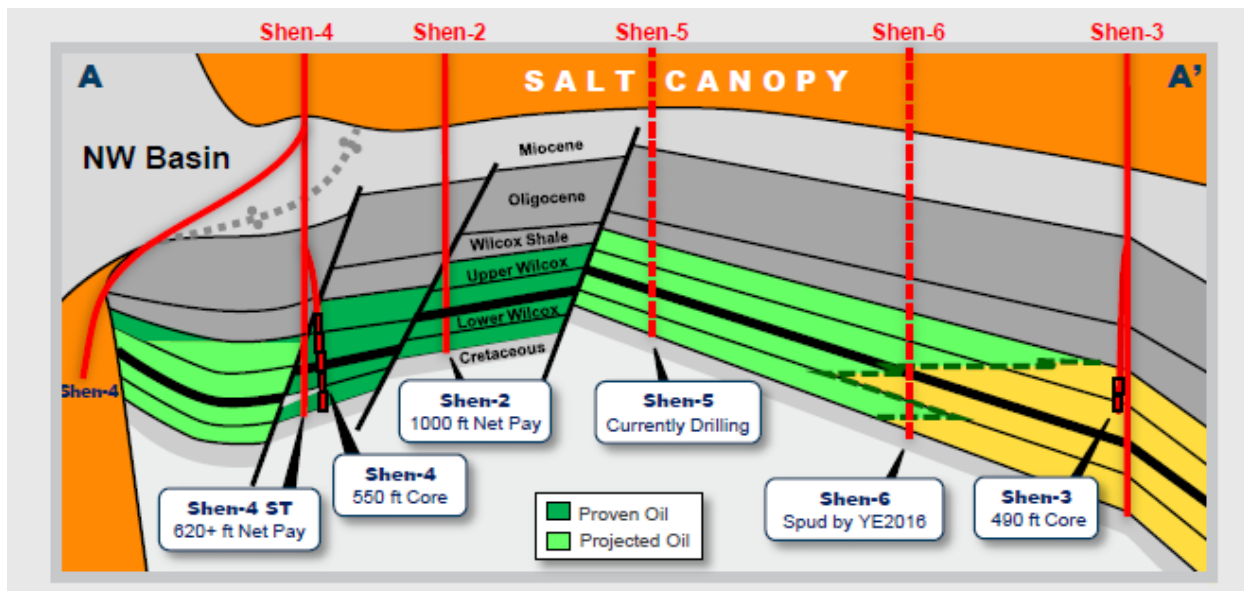
38. To start, Ms. Szabo did not use the SPE technical terms “proven reserves” or “probable reserves.” She instead discussed “Proven Oil” and “Projected Oil,” terms shown on the slide she was presenting, which I have copied below as Figure 1.

⁴⁵ *Id.* ¶ 96.

⁴⁶ *Id.* (emphasis in original).

⁴⁷ *Id.* (emphasis in original).

Figure 1. Relevant Portion of Slide from May 24, 2016 Presentation



39. The term “Proven Oil” is distinct from the SPE technical term “Proven Reserves,” just as “Projected Oil” is distinct from the SPE technical term “Probable Reserves.” While “Proven Oil” indicates that it has been proven that oil has been discovered in the well, it suggests nothing about the commerciality of the well.
40. Additionally, while Dr. Merrill suggests that Ms. Szabo’s use of the terms “proven” and “probable” conveyed that the Shen field had met SPE reserves classification standards for demonstrating that the wells had “proven reserves” or “probable reserves,” market participants would have readily recognized that Ms. Szabo was not making such a claim. The SPE standards for “proven reserves” and “probable reserves” require that “wells . . . are under development,”⁴⁸ as Dr. Merrill indicates, yet Shenandoah was not yet under development, as market participants were aware. Indeed, Dr. Merrill testified that he had “no indications” that the field might be under development as of May 2016, the time of Ms.

⁴⁸ *Id.*

Szabo's comments.⁴⁹ In fact, as of May 24, 2016, none of the Shenandoah appraisal wells had been completed, meaning casing had not been set and then perforated so that oil and gas can flow into production tubing.⁵⁰ Investors would therefore understand that no "proven reserves" or "probable reserves," under the SPE definition of these terms, could be booked.

41. I addressed SPE definitions and requirements in paragraph 53 of my Affirmative Report, where I stated:

Investors understand that resource estimates are distinct from estimates of proved reserves. Unlike resource estimates, proved reserves are those reserves claimed to have a reasonable certainty (normally at least 90% confidence) of being recoverable under existing economic and political conditions, with existing technology. Proved reserves are booked in accordance with standards from the Society of Petroleum Engineers ("SPE") and requirements from the SEC.

42. At no point did Anadarko suggest that the wells were under development.⁵¹ Indeed, after every well, Anadarko noted that additional work was needed before the company would determine whether or not to proceed with development. Even after some appraisal wells found high oil pay, the company continued to explore the field.
43. Further, as noted above, proved reserves are those that are "recoverable under existing economic and political conditions, with existing technology." Yet, both commodity prices and the state of development technology were moving targets. As I observed in my Affirmative Report, throughout the Class Period, oil prices were generally weak, having

⁴⁹ Deposition of Robert Merrill, December 7, 2022, 197:15-25.

⁵⁰ C. Mark Pearson, Coloradans for Responsible Energy Development, "The Seven Steps of Oil and Natural Gas Extraction," <https://www.cred.org/seven-steps-of-oil-and-natural-gas-extraction/>.

⁵¹ Merrill Report ¶ 96.

declined from a monthly peak of over \$133/bbl in July 2008 to \$50.58 in February 2015 at the beginning of the Class Period and to \$48.48 in May 2017 by the end of the Class Period.⁵²

44. In addition, it was well known in the industry that there were significant technological challenges to drilling, completing, and producing wells in a 20,000 psi environment. Only one well—Chevron’s Anchor field, appraisal completed October 2015, final investment decision December 2019⁵³—has been successfully completed at 20,000 psi, and Beacon’s resumption of drilling at Shenandoah was delayed as it waited delivery of a new Transocean drillship and BOP with 20,000 psi capabilities, which were projected to become available in Q3 2022.⁵⁴
45. Finally, in my searches of analyst commentary, I have not seen any evidence that suggests that the investors had understood Ms. Szabo’s statements to mean that Shenandoah had “proven reserves” or “probable reserves.” Indeed, in analyzing Anadarko’s asset base, neither Anadarko nor analysts categorized Shenandoah as having proven or probable assets. For example, the below analysis by RBC shows that they understood that no resources at Shenandoah were “proved,” with Shenandoah listed under “Risky Undeveloped Upside.”

⁵² Affirmative Report, p. 14, Figure 1 (calculated as the monthly average using the daily WTI data).

⁵³ Businesswire, “Chevron Announces the Successful Appraisal of the Anchor Discovery in the Deepwater Gulf of Mexico,” October 29, 2015; Chevron, “Chevron Sanctions Anchor Project in the Deepwater U.S. Gulf of Mexico,” December 12, 2019.

⁵⁴ Offshore, Shenandoah gets the go-ahead in the deepwater Gulf of Mexico, August 26, 2021.

Figure 2. RBC NAV from March 2017⁵⁵**Net Asset Valuation**

Exhibit 2: RBC NAV Assessment of Anadarko Petroleum

Proved Reserves & Other Assets										
Proved Assets					MMboe	\$MM's	\$/Share	\$/boe		
PDP-USA					756	\$9,720	\$17.48	\$12.86		
PUD-USA					315	2,519	4.53	8.00		
PDP-Intl					166	2,575	4.63	15.50		
PUD-Intl					14	330	0.59	23.58		
Adjusted Net Debt						(11,206)	(20.15)			
Total Other Assets Incl WGP, APC Midstream, & Minerals						12,644	22.73			
Open Hedge Value						0	0.00			
Proved Net Asset Value					1,251	\$16,584	\$29.82	\$13.26		
Proved Less PUD Value					922	\$13,734	\$24.69	\$14.90		
Risked Undeveloped Upside										
Area	Acreage*	Haircut	Spacing	Wells	EUR	MMboe	\$MM's	\$/Share	\$/boe	\$/Acre
Mozambique (East Africa)	318,000	50%				1,987	\$1,598	\$2.87	\$0.80	\$5,024
DJ Basin (Core)	255,256	30%	60	3,233	550	1,433	9,240	16.61	6.45	36,200
DJ Basin (Extended)	432,979	75%	160	740	325	139	885	1.59	6.35	2,043
Wolfcamp A	214,741	20%	160	5,300	1,200	2,062	12,803	23.02	6.21	59,619
Wolfcamp B, C, D	234,028	50%	160	2,407	1,000	780	1,347	2.42	1.73	5,755
Bone Spring-Leonard	211,675	50%	320	1,089	750	265	639	1.15	2.41	3,020
Eaglebine/GNB/GRB/Alaska						590	944	1.70	1.60	
Gulf of Mexico (Tieback)						138	2,349	4.22	17.01	
Shenandoah (GOM)						213	953	1.71	4.47	
GOM Exploration and Unbooked						711	2,710	4.87	3.81	
West Africa						700	1,085	1.95	1.55	
Colombia						250	294	0.53	1.18	
Brazil (Wahoo)						71	148	0.27	2.07	
International PUDS						11	186	0.33	17.69	
Other Global Upside						500	350	0.63	0.70	
Risked Undeveloped Upside						9,850	\$35,529	\$63.88	\$3.61	
* Net undeveloped acreage assessment										
Proved + Risked Unbooked NAV						10,772	\$49,264	\$88.57	\$4.57	

46. RBC's net asset valuation is consistent with other analysts' characterizations of Shenandoah throughout the Class Period. At paragraph 97 of my Affirmative Report, I explained:

I found at least 314 reports from 22 analysts, including UBS, JP Morgan and Goldman Sachs published ... during the Class Period that applied a NAV approach to estimate the value of Anadarko. Most of these reports did not

⁵⁵ RBC Capital Markets, "Anadarko Petroleum Corp. The Plan Has Come Together," March 16, 2017, p. 3 (APC-01334517).

provide a value for Shenandoah because they either assigned no value to Shenandoah or did not value Shenandoah separately from the other unproven assets.⁵⁶

47. **Conclusion E: Dr. Merrill mischaracterizes the write-off, incorrectly asserting that Anadarko “abandoned Shen as non-commercial.”**
48. Dr. Merrill mischaracterizes the nature of the write-off, stating that “Anadarko abandoned Shen as non-commercial after management had touted it to the public as one of the largest and most valuable discoveries in the Deep Gulf of Mexico.”⁵⁷ This is a mischaracterization of Anadarko’s actions and investors’ understanding of those actions.
49. As an initial matter, Anadarko did not “abandon” Shenandoah in May 2017. At paragraphs 325-327 of my Affirmative Report, I showed how Anadarko explained that its decision to take the impairment and write-off was to satisfy accounting requirements based on the results of Shen-6 and the then-current level of commodity price. However, it maintained its working interest in the project as it considered a path forward.
50. Indeed, during his deposition, Dr. Merrill admitted it would be speculation to conclude that Anadarko wrote off Shenandoah as non-commercial: “What I mean there is that Anadarko decided not to develop it because—and why they decided not to develop it, I can’t say. Probably had something—and I can speculate, but I’m not going to speculate as to why they exited. . . . They wouldn’t have abandoned it if they thought it was commercial.”⁵⁸
51. More importantly, it is not accurate to say that Shenandoah was “non-commercial,” particularly without recognizing the importance of the commodity price environment. At

⁵⁶ Affirmative Report ¶ 97.

⁵⁷ Merrill Report ¶ 97.

⁵⁸ Deposition of Robert Merrill, December 7, 2022, 76:15--19.

paragraphs 43-45 of my Affirmative Report, I explained how the current development of Shenandoah confirms that it could be commercially viable in the right commodity pricing environment and with the advancement of drilling technology.

52. Importantly, as explained in my Affirmative Report, investors were not surprised by the write-off. At paragraphs 328-329 of my Affirmative Report, I identified market participants' comments, which showed that the write-off was not surprising given the information that was previously disclosed. Before the write-off, multiple analyst reports questioned the viability in the then-deteriorating oil markets, with, for example, a Goldman Sachs report projecting "breakeven oil price of \$45-50/bbl"⁵⁹ and Wood Mackenzie identifying internal rates of return of 15%, well beyond mere breakeven, for deepwater drilling.⁶⁰ Dr. Merrill fails to consider any of this evidence in assessing the relevance of the public's understanding of the Shenandoah appraisal project.

3. Rebuttal to the Steinholt Report

53. Mr. Steinholt opines that "Plaintiffs allege that Defendants made public statements leading up to and during the Class Period about Shen that they failed to correct and concealed . . . material facts necessary not to make their statements misleading."⁶¹ Below, I review the relevant background, statements, and/or investor understanding related to each purported non-disclosure Mr. Steinholt identifies.⁶²

⁵⁹ Affirmative Report ¶ 96 (citing Goldman Sachs, "Anadarko Petroleum Corp. (APC) Unappreciated GOM production profile to drive the next leg up; Buy," February 5, 2017, p. 15 (GS-002754)).

⁶⁰ *Id.* ¶ 284 (citing Wood Mackenzie, "The Rising Hurdles for Investment in Upstream," April 30, 2021, p. 1).

⁶¹ Steinholt Report ¶ 28.

⁶² *Id.* ¶¶ 28, 29.

54. **Conclusion A: Anadarko did not disclose a resource range to the public, and investors would have understood how the post-Shen-2 wells would have affected Shenandoah's resource size.**
55. Mr. Steinholt states that one of the "material facts" that Plaintiffs allege Anadarko concealed is that "[e]ach well post-Shen-2 reflected a significantly reduced Shen's resource size, falling below the range of expectations and rendering Shen uncommercial."⁶³ I demonstrated in my Affirmative Report that, consistent with its prior practice and industry norms, Anadarko did not disclose a resource range. However, Anadarko did disclose important information about well results and its plan forward. These statements indicated to investors that Shenandoah was smaller than originally expected and faced challenges with faulting that might impact the development plan. Importantly, Anadarko also repeatedly disclosed that it needed to conduct additional appraisal to understand the resource.
56. At paragraphs 50-53 of my Affirmative Report, I explained that it is common for operators not to release resource ranges for a specific prospect during the appraisal process, and that Anadarko did not release a resource range for Shenandoah.
57. At paragraph 16.c.vi of my Affirmative Report, I explained how investors understood that "the appraisal wells after Shen-2, with the exception of Shen-5, encountered less oil pay than Shen-2, indicating that the full resource size might be smaller than originally hoped."
58. At paragraphs 210-215 and 218 of my Affirmative Report, I explained how investors and analysts understood that Shen-3 did not encounter hydrocarbons, reduced the areal extent

⁶³ *Id.* ¶ 28(a).

of the hydrocarbon bearing portion of the reservoir, and likely reduced the potential resources.

59. At paragraphs 237-243 of my Affirmative Report, I explained how investors understood from Anadarko's statements that the original Shen-4 well encountered salt and that the sidetrack encountered less pay than Shen-2.
60. At paragraphs 279-291 of my Affirmative Report, I explained how investors understood that Shen-5, which ultimately encountered more net pay than Shen-2, was a promising development. However, I also explained that investors understood that Anadarko still needed to gain additional information about the resource size and find ways to reduce development costs, particularly due to then-prevailing low oil prices, before making an investment decision.
61. At paragraphs 317-320 of my Affirmative Report, I explained how investors and other market participants understood that Shen-6 was a wet well.
62. Mr. Steinholt's blanket statement that Anadarko did not disclose the resource size does not change any of the opinions in my Affirmative Report. Given Anadarko's practices, investors would not expect Anadarko to release any internal estimate of resource range during the appraisal process. Investors would also understand that any internal estimates of the resource range based on results of the appraisal wells were highly preliminary and subject to change as Anadarko learned additional information. Anadarko did release tangible well results, such as sand quality, depth, oil-water contact, and porosity,⁶⁴ which

⁶⁴ For example, see Yahoo Finance, "Anadarko Announces Shenandoah Appraisal Well Encounters More Than 1,000 Net Feet of Oil Pay," March 19, 2013, <https://finance.yahoo.com/news/anadarko-announces-shenandoah-appraisal-well-200500390.html>; Anadarko Petroleum Company, UBS Global Oil and Gas Conference Transcript, May 24, 2016, pp. 8-9 (APC-01753704).

allowed investors to gain helpful information on the characteristics and economic potential of Shenandoah.

63. **Conclusion B: Investors understood that the Gulf of Mexico was structurally complex and that there was faulting and compartmentalization in the Shenandoah basin.**

64. Mr. Steinholt states that one of the “material facts” that Plaintiffs allege Anadarko concealed is that “[f]ault compartmentalization posed a serious risk to Shen’s commercial viability and producible resource size[.]”⁶⁵

65. At paragraph 69 of my Affirmative Report, I explained that prior to the Class Period, the Gulf of Mexico was recognized as structurally complex, at least in part due to its faults. Moreover, as discussed above, even Dr. Merrill acknowledges that this complexity was publicly known. Dr. Merrill also observed that a project’s structural complexity increases as it progresses. He said that “[i]t is not unusual for recognized structural complexity in a project to increase with time in a given field because seismic data improves, and newly drilled wells intersect faults and fractures.”⁶⁶ In other words, it is well known that there is faulting in the Gulf of Mexico, and investors in the industry would not have expected the field to be devoid of any faults.

66. At paragraphs 264-269 of my Affirmative Report, I explained that by no later than May 2016, investors understood that there was faulting and compartmentalization in the Shenandoah basin. This included faults between Shen-2 and Shen-3, and between Shen-2 and Shen-4. Discovery of these faults required Anadarko to continue drilling to better understand the asset.

⁶⁵ Steinholt Report ¶ 28(b).

⁶⁶ Merrill Report ¶ 39.

67. The purpose of an appraisal project is to understand the reservoir and determine if there is a feasible development solution. Investors would not have expected to know about every fault in the reservoir; they are more concerned with the feasibility of development.
68. **Conclusion C: Because Anadarko's resource range was not disclosed publicly, investors would not have been misled by any alleged inaccuracies in its range. Furthermore, it was generally understood by investors that the region was geologically complex.**
69. Mr. Steinholt states that one of the "material facts" that Plaintiffs allege Anadarko concealed is that "Anadarko's resource range for Shen did not adequately reflect its structural uncertainties and sand thickness variability[.]"⁶⁷ This allegation overlooks that Anadarko did not disclose a resource range for Shenandoah. Accordingly, any alleged inaccuracies in its internal resource range would not have affected investor expectations for the project.
70. At paragraphs 50-53 of my Affirmative Report, I explained that it is common for operators not to release resource ranges for a specific prospect during the appraisal process and that Anadarko did not do so for Shenandoah. Opting to not disclose a resource estimate for Shenandoah is consistent with industry norms and Anadarko's stated practice of declining to release resource ranges at early stages of a project.
71. Setting aside whether investor expectations would be affected by alleged inaccuracies in an undisclosed resource range, Anadarko's disclosures made clear that the region was geologically complex. At paragraph 145 of my Affirmative Report, I explained that during the March 2014 investor conference, Mr. Daniels highlighted potential challenges of the

⁶⁷ Steinholt Report ¶ 28(c).

region, including that Anadarko's discoveries in the Shenandoah basin were "sub-salt" and required "seismic acquisition and imaging in very, very complex structural regimes."

72. Likewise, at paragraph 254 of my Affirmative Report, I explained that, aside from any statements from Anadarko, investors would have independently understood that the Gulf of Mexico was geologically complex, so the Shenandoah field may be faulted and thus may not have as large of an areal extent as initially hoped. I further explained how "Anadarko representatives repeatedly emphasized [their] lack of knowledge regarding the lateral extent of the eastern side of the field, indicating that there may be fewer or no hydrocarbons than expected in those areas, which could be attributable to faulting or compartmentalization."
73. Finally, at paragraph 307 of my Affirmative Report, I explained that during a February 2017 Earnings Call, Mr. Leyendecker highlighted the structural complexities of the Shenandoah field and Anadarko's lack of knowledge regarding the extent of the resource on the east side of Shenandoah.
74. Mr. Steinholt's claim does not consider the public statements that Anadarko made about not disclosing the resource range.
75. **Conclusion D: Investors would understand that projection of oil-water contacts would neither confirm nor condemn the commerciality of Shen. Furthermore, there was already substantial uncertainty around Shen's commerciality following the drilling of Shen-3.**
76. Mr. Steinholt states that one of the "material facts" that Plaintiffs allege Anadarko concealed is that "[p]ressure data from Shen-3 did not allow for the reliable projection of oil-water

contacts[.]”⁶⁸ However, investors would not expect to know the degree of “reliab[ility]” with which Anadarko could “project[]” oil-water contacts. The use of pressure data to project oil-water contacts is an engineering detail and beyond the scope of what most investors would focus on in assessing Shenandoah’s commercial prospects. Pressure data was also only one measure of many that Anadarko’s internal technical team would consider in assessing the prospect. More fundamentally, investors would understand that reliable projection of oil-water contact in one appraisal well would neither confirm the commerciality of Shenandoah nor condemn it.

77. In addition, following Shen-3’s drilling, investors understood there was substantial uncertainty around Shenandoah’s commerciality, given that, for example, Anadarko’s publicly traded partners wrote off the well as a “dry hole.” Any limitations of the pressure data from Shen-3 were in addition to other sources of uncertainty around Shenandoah’s commerciality. Investors recognized this uncertainty at least in part because Anadarko did not end its appraisal process after drilling Shen-3; rather, Anadarko announced that it would need to drill additional appraisal wells to better understand Shenandoah’s resource potential. As I described in paragraphs 62-70 of my Affirmative Report, investors understood that deepwater exploration is highly risky and faces substantial uncertainties, and more so in deepwater Gulf of Mexico because it is a complex environment with multiple subsurface faults that can limit the recovery of reserves.
78. Mr. Steinholt’s report does not analyze how knowing the projection of oil-water contacts would have meaningfully affected investors’ view on Shenandoah. In fact, Mr. Steinholt testified that he did not evaluate the materiality of the particular issues he raised in his

⁶⁸ *Id.* ¶ 28(d).

report, including pressure data from Shen-3, characterizing the issues as “too technical for [him].”⁶⁹

79. **Conclusion E: Investors would have understood that asphaltene would be mitigated as part of any development plan and that, in Shenandoah, asphaltene deposition properties were relatively insignificant.**

80. Mr. Steinholt states that one of the “material facts” that Plaintiffs allege Anadarko concealed is that “[t]he asphaltene deposition properties of the Shenandoah crude oils had multiple negative impacts on commercial viability[.]”⁷⁰ However, as the Merrill Report makes clear, it was well known that Shenandoah was geologically complex.⁷¹ It was also known that there was a risk of asphaltene and that there were ways to mitigate that risk.⁷² As such, investors understand that asphaltene is a potential challenge that may arise in geologically complex areas such as the Gulf of Mexico, and they would not expect to receive information about every detail of the reservoir.

81. In its reporting on each appraisal well, Anadarko emphasized that more information must be gathered before it could reach a final investment decision.⁷³ In addition, investors understood that just as important as geological questions was the price of oil—the primary driver of commerciality—and this had been deteriorating. Measured against these factors,

⁶⁹ Deposition of Bjorn Steinholt, December 21, 2022, 76:13-78:19.

⁷⁰ Steinholt Report ¶ 28(e).

⁷¹ Merrill Report ¶¶ 24, 29, 30, 32, 35, 39.

⁷² See Abotaleb Abdelazim, et al., “Successful approach to mitigate the asphaltene precipitation problems in ESP oil wells,” *Journal of Petroleum Exploration and Production Technology* (2022), p. 737, <https://doi.org/10.1007/s13202-021-01335-7>.

⁷³ For example, see Affirmative Report ¶¶ 203, 221, 249, 252, 281; p. 139.

any concerns about how Shenandoah's asphaltene deposition properties might be mitigated were immaterial.

82. The relative insignificance of Shenandoah's asphaltene deposition properties is evidenced by Beacon resuming operations. With today's pricing environment and advances in technology, Beacon appears confident enough of commercial viability to commit an estimated \$1.8 billion to develop Shenandoah.⁷⁴ Beacon's decision to proceed with development, even with Shenandoah's asphaltene deposition properties, demonstrates why investors properly focus on other issues when assessing commerciality.
83. **Conclusion F: Investors would have understood that information coming out of Shen-3 and Shen-4 would have resulted in a reduced resource range.**
84. Mr. Steinholt states that one of the "material facts" that Plaintiffs allege Anadarko concealed is that "[r]esults from Shen-3 and Shen-4 resulted in a resource reduction of 64%, despite both wells being described as successful[.]"⁷⁵ However, any reduction to Anadarko's internal estimate of Shenandoah's resource range would not have affected investor expectations given that Anadarko did not disclose its resource range, as detailed in Section 3, Conclusion C above, and in my Affirmative Report at paragraphs 50-53.
85. Moreover, even though Anadarko did not have a practice of disclosing resource ranges at early stages, investors understood that key information coming out of Shen-3 and Shen-4 drillings would have resulted in a reduced resource range.

⁷⁴ NS Energy, "Shenandoah Field Development," p. 1 (APC-01753939).; Offshore Engineer, Hunting's Titanium Stress Joints for Beacon Offshore Energy's Shenandoah Project, August 16, 2022.

⁷⁵ Steinholt Report ¶ 28.

86. At paragraphs 210-215 and 218 of my Affirmative Report, I showed that investors and analysts understood that Shen-3 did not encounter hydrocarbons, reduced the areal extent of the hydrocarbon bearing portion of the reservoir, and therefore, likely reduced the potential resources.
87. In terms of Shen-3 “being described as successful,” at paragraphs 216-217 of my Affirmative Report, I explained how investors understood that Anadarko viewed Shen-3 as successful because it provided helpful information about the reservoir.
88. At paragraphs 237-243 of my Affirmative Report, I showed that investors understood from Anadarko’s statements that the original Shen-4 well encountered salt and that the sidetrack encountered less pay than Shen-2.
89. At paragraphs 244-249 of my Affirmative Report, I showed that investors did not view Defendants’ statements about the Shen-4 results as confirming any particular resource range.
90. At paragraphs 250-255 of my Affirmative Report, I showed that investors understood after Shen-4 that any final investment decision would depend on the information gathered from Shen-5 and Shen-6, as Anadarko needed to better understand the size and quality on the east side of the prospect.
91. At paragraphs 264-269 of my Affirmative Report, I showed that investors understood that there was faulting in the Shenandoah basin by no later than May 2016, and that this faulting required Anadarko to continue drilling to understand the asset. In addition to understanding that there was a fault between Shen-2 and Shen-3 and between Shen-2 and Shen-4, investors also understood that the original Shen-4 wellbore drilled into salt.

92. **Conclusion G: Anadarko did not disclose a resource range and, therefore, investors would not expect to be apprised of how that undisclosed resource range is affected by internal disagreements.**
93. Mr. Steinholt states that one of the “material facts” that Plaintiffs allege Anadarko concealed is that “[a]n internal audit of Shen by Anadarko’s RCT resulted in a significant downward adjustment to the resource size.”⁷⁶
94. This allegation overlooks that Anadarko did not disclose a resource range for Shenandoah. As I have explained in Section 3, Conclusions C and F above, and in my Affirmative Report at paragraphs 50-53, Anadarko did not release a resource range for Shenandoah, and it is common for operators not to do so during the appraisal process. Accordingly, any downward adjustments to its resource range resulting from an internal audit or any other factor would not have affected investor expectations for the project.
95. Additionally, investors would not expect to hear about internal disagreements, which are expected in the appraisal process; rather, investors would expect to learn about progress toward a final investment decision. Investors who had never been provided a resource range would not expect to be apprised of how that undisclosed resource range is affected by the resolution of internal disagreements.
96. **Conclusion H: Investors understood that Anadarko conducted the appraisal process to understand the commerciality of Shenandoah, which depended on a number of factors.**

⁷⁶ *Id.* ¶ 28(g).

They also understood that any final investment decision would be based on the results of Shen-5 and Shen-6.

97. Mr. Steinholt states that one of the “material facts” that Plaintiffs allege Anadarko concealed is that “Shen was more likely than not uncommercial after the results of Shen-3, and certainly not commercially viable after Shen-4[.]”⁷⁷
98. Mr. Steinholt does not provide a basis for this determination. However, that Beacon is developing Shenandoah today demonstrates that Shenandoah is viewed as “commercially viable” in the current macroeconomic environment. To the extent Mr. Steinholt suggests that Shenandoah was not commercial in the then-existing environment, Anadarko disclosed that it would not sanction Shenandoah at then-prevailing oil prices.
99. Investors understood that Anadarko conducted the appraisal process to understand the commerciality of Shenandoah. Commerciality would depend on many things, including the quality of the reservoir, cost of development, macroeconomic factors such as the price of oil, and how investment in Shenandoah fit within Anadarko’s broader portfolio.
100. At paragraphs 250-255 of my Affirmative Report, I explained how investors understood after Shen-4 that any final investment decision would depend on the information gathered from Shen-5 and Shen-6, as Anadarko needed to better understand the size and quality on the east side of the prospect. As discussed above, at paragraphs 264-269 of my Affirmative Report, I showed that investors understood that there was faulting in the Shenandoah basin by no later than May 2016, and that this faulting required Anadarko to continue drilling to understand the asset. In addition to understanding that there was a fault between Shen-2

⁷⁷ *Id.* ¶ 28(j).

and Shen-3 and between Shen-2 and Shen-4, investors also understood that the original Shen-4 wellbore drilled into salt.

101. At paragraphs 256-263 of my Affirmative Report, I explained that after the results of Shen-4 were released, investors understood that Anadarko was unlikely to invest in Shenandoah at then-prevailing oil prices. However, investors also understood that more appraisal work was needed, which required time and allowed for the possibility that oil prices would rise and the development of technology would advance.
102. Mr. Steinholt's statement that Anadarko concealed that Shenandoah was not commercially viable is not supported by any evidence and is in direct conflict with the current development occurring at Shenandoah. My review of Anadarko's and the partners' public statements, as well as market commentary, indicates that investors understood that Shenandoah faced challenges, particularly after Shen-4, but that Anadarko and the partners needed to continue to appraise the resource to decide whether or not to sanction the project.
103. **Conclusion I: Mr. Steinholt mischaracterizes the alleged corrective disclosure.**
104. Mr. Steinholt states that "the alleged truth, *i.e.*, the lack of commercial viability of the Shenandoah project, was disclosed after the market had closed on May 2, 2017, as part of the Company's Q1 2017 announcement, including the suspension of appraisal activities in the Shenandoah and the associated \$902 million write-off and expenses."⁷⁸ Like Dr. Merrill, Mr. Steinholt mischaracterizes the alleged corrective disclosure.
105. At paragraphs 325-327 of my Affirmative Report, I showed how Anadarko explained that its decision to take the impairment and write-off was to satisfy accounting requirements

⁷⁸ *Id.* ¶ 29.

based on the results of Shen-6 and the then-current level of commodity price. Further, as analysts cited by Mr. Steinholt explain, Anadarko was assessing a path forward and had not concluded that Shen was, as Mr. Steinholt contends, not commercially viable.⁷⁹

106. As discussed in paragraphs 43-45 above, Shenandoah could be commercially viable in the right commodity pricing environment and with the advancement of drilling technology. Furthermore, at paragraphs 328-329 of my Affirmative Report and as noted above, I identified market participants' comments, which showed that the write-off was not surprising given the information that was previously disclosed. Rather, investors understood that the write-off was to satisfy accounting requirements based on the results of Shen-6.

4. Rebuttal to the Regan Report

107. **Conclusion A: The Regan Report fails to account for the context of Anadarko's pre-Shen-3 statements.**
108. Mr. Regan opines that "given Anadarko's asserted potential significance of the Shenandoah project, including Shen-3, on the Company's future operations and profitability, Anadarko's disclosures asserting the success of Shen-3, despite it being a dry hole, further

⁷⁹ Raymond James, "1Q17 Quick Take: Anadarko Reports Solid First Quarter," May 2, 2017, p. 1 (APC-01553905) ("On the offshore front, the company met some difficulties in the Shenandoah field, with its latest appraisal failing to encounter the oil-water contact in the eastern portion of the field. As such, the company has suspended appraisal activity in the field while it evaluates the path forward."); RBC Capital Markets, "Market Focus May Be Elsewhere," May 2, 2017, p. 1 (APC-01379628) ("We think APC remains committed to evaluating the potential of this project but does not have definitive plans at this time."); UBS, "Anadarko Petroleum Corp. Large Exploration Expense Drives 1Q17 EPS/CFPS Miss but EBITDX Beats; Maintains 2017 Guidance," May 3, 2017, p. 8, (UBS00071254) ("APC has currently suspended appraisal activity while it evaluates the path forward, including monetizing the field or abandoning it as economics are marginal at current oil prices.").

supports the materiality of Anadarko's misstatement and related disclosure omissions."⁸⁰ In doing so, he relies upon several of Anadarko's public statements.

109. In support, Mr. Regan first opines that "the importance of both Shenandoah and Shen-3 were repeatedly communicated by Anadarko's management and others."⁸¹ Mr. Regan quotes various Anadarko employees regarding their excitement and optimism over discovering Shenandoah. For example, he quotes Anadarko's management describing Shenandoah as a "big exploration" project and saying they were "very encouraged."⁸² He quotes Frank Patterson of Anadarko as saying, "Shenandoah could end up being one of the largest discoveries in the Gulf of Mexico, we don't know" and that they are "pretty excited."⁸³ Elsewhere, for example, he quotes Robert Daniels saying, "[w]e have the big discovery at Shenandoah."⁸⁴
110. As of October 2014, only Shen-1 and Shen-2 had been drilled, both with encouraging results. At that time, the prevailing outlook on commodity pricing was promising. However, even after encouraging results from Shen-1 and Shen-2, investors were aware that deepwater wells drilled to 30,000 feet in high-pressure, sub-salt environments represented high-risk prospects. As I explained in my Affirmative Report, there is significant uncertainty as to the likelihood of drilling success and the economics of full-scale development in this environment, and this is especially true in the Gulf of Mexico.⁸⁵ Investors understood that the results of Shen-1 and Shen-2 did not necessarily mean that there would be an final

⁸⁰ Regan Report ¶ 79.

⁸¹ *Id.* ¶ 80.

⁸² *Id.* ¶ 80(a).

⁸³ *Id.* ¶ 80(c).

⁸⁴ *Id.* ¶ 80(d).

⁸⁵ Affirmative Report ¶¶ 62-70.

investment decision.⁸⁶ Investors understood that the appraisal program was in its early stages, and that any development would depend on the findings of the appraisal program, cost of development, and macroeconomic factors such as the price of oil, as emphasized by Anadarko in its public statements.⁸⁷

111. Mr. Regan's analysis is flawed because he fails to put these statements into the context of a large-scale, long-term appraisal project. Investors would not have understood these statements as a guarantee.

112. **Conclusion B: The Regan Report fails to recognize that investors understood that the decision to write off a particular well depends on the internal policy and that different companies apply different standards. Here, investors understood that Shen-3 was a dry hole.**

113. Mr. Regan suggests that the decision not to write off Shen-3 caused Anadarko's financial statements to be materially misstated because Anadarko's action was in conflict with some of the other partners' disclosures:

Of further significance was Anadarko's other 2014 disclosures that *did not explicitly acknowledge that Shen-3 was a dry hole or wet well*. Instead, Anadarko disclosed the favorable outcome of its Shen-3 well, characterizing it as a '*very successful appraisal well*,' and in March 2015 generally noted that Shenandoah was '[a]dvancing [t]oward [d]evelopment.'⁸⁸ (emphasis added).

114. Mr. Regan then comments on an investment researcher's inquiry about the Company's plans for project development and Mr. Daniels' response which, according to Mr. Regan,

⁸⁶ *Id.* ¶¶ 118-121, 128-135.

⁸⁷ *Id.*

⁸⁸ Regan Report ¶ 81.

“conveyed management’s excite[ment] at Shenandoah and the ‘very good’ project results.”⁸⁹ Mr. Regan asserts that Mr. Daniels’ response and Anadarko management’s prior expressions of encouragement over Shen-3 were “in contrast to the ‘bad news,’ ‘unsuccessful,’ ‘wet well,’ and ‘dry hole’ characterizations of Shen-3[.]”⁹⁰ He also contends that Anadarko executives avoided certain characterizations of Shen-3—namely that it was a wet well, reduced the resource range, and had “technological challenges,” “execution risk,” and a “major fault.”⁹¹

115. Mr. Regan’s materiality analysis is flawed because Mr. Regan fails to recognize the basic premise that investors’ understanding of the Shenandoah project was based on all of the information available in the market, including the partners’ accounting decisions. He also fails to understand that, based on the totality of information in the market, investors understood that Shen-3 did not encounter hydrocarbons—the reason he claims it should have been immediately expensed.
116. At paragraphs 71-72 of my Affirmative Report, I explained that investors understand that the decision to record a dry hole expense is based on company-level accounting policy. Investors understand that exploration companies involved in a joint venture, such as the Shenandoah Partners, make independent accounting determinations based on their own interpretation of well results, applicable accounting standards, and individual accounting policies and, accordingly, may reach different determinations regarding whether and when it is appropriate to write off well costs as a dry hole expense.

⁸⁹ *Id.* ¶ 82.

⁹⁰ *Id.* ¶ 83.

⁹¹ *Id.* ¶ 85.

117. At paragraphs 184-218 of my Affirmative Report, I explained that investors understood that Shen-3 was a dry hole. Several Shenandoah Partners wrote off Shen-3 as a dry hole in January or February 2015. It was also clear based on statements from Anadarko itself and market participants, like analysts and energy news sources, that investors understood that Shen-3 did not encounter hydrocarbons.
118. In my Affirmative Report, and as summarized above, I described how investors understood results from Shen-3 and statements about the well being “successful.” Briefly, investors understood Shen-3 was a dry hole at least in part because Anadarko’s partners described it this way and expensed the drilling costs. They also understood that Anadarko viewed the well as successful because it helped define the reservoir, or, as quoted by Mr. Regan, it provided “a much better handle on the oil in place.”⁹²
119. However, in addition to describing how Shen-3 was successful, Anadarko continued to inform market participants that additional appraisal drilling would be necessary before development could be sanctioned. In addition to hearing expressions of optimism and observing Anadarko’s and its partners’ willingness to proceed with the project, investors also were aware of the “dry hole” characterizations that Mr. Regan has identified.⁹³ These characterizations provided them with a balanced understanding of the potential upside and downside coming out of Shen-3 and Shen-4.
120. As the above demonstrates, Mr. Regan’s materiality analysis fails to account for the fact that the partners’ accounting decisions affected the market’s understanding of Shenandoah. He also fails to consider how investors understood Anadarko’s own statements about Shen-3.

⁹² Affirmative Report ¶ 193.

⁹³ *Id.*

Most importantly, with all the information in the market, investors understood that Shen-3 did not find oil—the fact Mr. Regan suggests Anadarko failed to disclose.

121. **Conclusion C: The Regan Report’s materiality analysis fails to recognize that investors care about whether the project will be developed, not the accounting decision on one particular appraisal well. Ultimately, whether Anadarko develops Shenandoah does not depend on whether it expenses Shen-3.**
122. The Regan Report does not explain why investors would care about the accounting decision for a particular well when the underlying facts that are relevant to that accounting decision are public and available to investors.
123. As explained in my Affirmative Report, investors understand that oil and gas companies must invest a significant amount of time and money to understand and appraise an oil discovery.⁹⁴ Investors understand that in the course of this appraisal process, it is not uncommon for a company to drill a well that does not encounter hydrocarbons.⁹⁵ Investors also understand that after an exploration company incurs costs associated with an appraisal well, it must determine whether to suspend or expense well costs based on company-level accounting policy.⁹⁶ Furthermore, investors understand that exploration companies may expense millions of dollars in dry hole costs each year, given the substantial risk of dry holes in exploratory drilling, and that this is a necessary part of deepwater exploration drilling.⁹⁷

⁹⁴ *Id.* ¶¶ 54-61.

⁹⁵ *Id.* ¶¶ 71-75.

⁹⁶ *Id.*

⁹⁷ *Id.*

124. At issue here are sunk costs, i.e., costs of wells that have already been drilled. The issue is whether it is appropriate that Anadarko suspended, rather than immediately expensed, those costs. But as Plaintiffs' other expert Mr. Steinholt opines, "From an economic point of view, the value of an investment is based on the expected future cash flows of that investment, including the timing and associated risk of those cash flows."⁹⁸ Investors are concerned with the overall decision of whether, following the appraisal process, the company will ultimately invest in the project. This decision depends on well results throughout the project, not on the accounting decision of whether to expense a particular well. Thus, while investors are concerned with the results of a well, they are not concerned with the question of whether to suspend those costs pending further appraisal or immediately expense those costs.
125. In addition, investors—particularly those who are aware that Anadarko's partners had expensed Shen-3 and called it a dry hole—would not consider it material that Anadarko chose not to expense Shen-3 given that they make investment decisions based on the company's expected performance. The Regan Report contends that "the proper inclusion and disclosure of Shen-3 related dry hole expense as of December 31, 2014 would have negatively impacted Anadarko's respectively reported annual Income (Loss) before taxes and disclosed dry hole expense by an amount much greater than 5%."⁹⁹ Mr. Regan clarified his point at deposition when he was asked "if that number [exploratory well costs] is 5 percent off, a reasonable investor might change his or her invest decision based on that?" He responded: "I think that's – that's part of the total mix of information that may be

⁹⁸ Steinholt Report ¶ 49.

⁹⁹ Regan Report ¶ 74.

important to a reasonable person reviewing the financial statements. I don't think you can look at one percentage; you need to look at the total mix."¹⁰⁰

126. Mr. Regan's statement that "[y]ou need to look at the total mix" of information is correct. That total mix, as noted, includes the understanding that Anadarko's partners expensed the well and called it a dry hole. Yet another write-off by Anadarko, in addition to those of its partners, would provide no incremental value to an investor's understanding of Shenandoah's expected commerciality. In addition, investors are concerned with how the total mix of information affects projections of future profitability for not only a single well or even an entire field, but the company as a whole. In my Affirmative Report, I reported that "I found at least 314 reports from 22 analysts, including UBS, JP Morgan and Goldman Sachs published ... during the Class Period that applied a NAV [net asset value] approach to estimate the value of Anadarko."¹⁰¹ Only a small number of those reports identified a non-zero value for Shenandoah, and those reports indicated a range of values that represented only 1.1% to 3.7% of Anadarko's total net asset value.¹⁰² This range applies to the value of the Shenandoah project as a whole—not the decision to expense a single well—and still falls short of the 5% threshold on the metric that investors are most concerned about: company value. The total cost of Shen-3, \$66 million, was not material against Anadarko's multi-billion-dollar market cap.

¹⁰⁰ Deposition of Paul Regan January 20, 2023, 124:10-124:20.

¹⁰¹ Affirmative Report ¶ 97.

¹⁰² *Id.*

127. **Conclusion D: The Regan Report improperly interprets finding “50% more ... sands” as “50% more resources.”**
128. The Regan Report contends that Anadarko’s Q4 2014 earnings release and operations report “contained positive and incorrect statements regarding Shenandoah, particularly about finding 50% more resources rather than actually finding less.”¹⁰³
129. As an initial matter, the Regan Report is factually wrong. The Q4 2014 Operations Report did not state that Anadarko found “50% more resources,” but instead stated that “[t]he Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands[.]”¹⁰⁴
130. My review of analyst reports and commentary finds no suggestion that investors would have interpreted the statement “50% more ... sands” as meaning “50% more resources.” Investors understood that Anadarko had reported net pay for its previous wells Shen-1 and Shen-2, but it did not do so for Shen-3, instead commenting on the amount of sands discovered. Anadarko’s Q4 2014 Operations Report emphasizes this difference by juxtaposing the two measures in the same sentence—discovery of “sands” by Shen-3 as compared to “1,000 feet of net oil pay” discovered by Shen-2.¹⁰⁵ By disclosing that it encountered 50% more sands, without any discussion of net pay, Anadarko indicated that it did not encounter oil in those sands. To the extent the Regan Report suggests that

¹⁰³ Regan Report ¶ 82, n. 137.

¹⁰⁴ Anadarko Q4 2014 Operations Report, February 2, 2015 (APC-00002814-2830).

¹⁰⁵ *Id.* (“The Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered more than 1,000 feet of net oil pay in excellent quality, Lower Tertiary-aged sands.”).

Anadarko disclosed a 50% increase in the resource *range*—something that Anadarko did not disclose at all—I find no support for that proposition.

131. **Conclusion E: The Regan Report ignores disclosures Anadarko made regarding challenges encountered during the Shenandoah appraisal process.**

132. Mr. Regan states that “[p]rior to the . . . end of Q1 2017, Anadarko continued to assert the success of certain wells and the implicit possibility of future economic benefit of its Shenandoah-related investments.”¹⁰⁶ The statements Mr. Regan quotes from this period—before drilling of Shen-6 was completed—again provide investors with a balanced understanding of Shenandoah’s upside potential and downside risks as known at the time.

133. For example, he quotes Mr. Daniels as stating, “[w]e have high expectations” for Shen-5 even though “we need to drill the well and see,” adding “[t]hat’s what appraisal is all about.”¹⁰⁷ He also quotes Mr. Daniels emphasizing that Anadarko had much more to learn through the appraisal process: “[W]e’re a long ways from sanction at this point. If Shenandoah-5 is successful, we may move even farther to the east with a Shenandoah-6, but of course that will be all dependent on what happens at Shenandoah-5.”¹⁰⁸

134. Mr. Regan also quotes Mr. Daniels shortly thereafter, again emphasizing downsides and unknowns. For example, he quotes Mr. Daniels as stating, “I don’t think that we have a price deck right now that says it would be economic” and “we still are advancing the project, but we’re a ways away from a sanction at Shenandoah.”¹⁰⁹

¹⁰⁶ Regan Report ¶ 107.

¹⁰⁷ *Id.* ¶ 108(a).

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* ¶ 108(b).

135. Mr. Regan quotes Mr. Leyendecker referencing the “fantastic Shenandoah discovery.”¹¹⁰ Mr. Leyendecker said this on May 11, 2016, during the drilling of Shen-5 which ultimately found over 1,000 feet of net pay.
136. Mr. Regan quotes Ms. Szabo, as did Dr. Merrill, offering her opinion: “I think when you look at Shenandoah, it goes without saying that it is the finest lower-tertiary discovery to date in the Gulf of Mexico.”¹¹¹ In addition to offering her opinion, she cautioned that “we’re just about to finish up the #5 well, so we can’t reveal exactly what’s going on there.”¹¹² Despite that caution, it would turn out that, as noted, Shen-5 would find over 1,000 feet of net pay.¹¹³
137. Mr. Regan quotes Mr. Gwin during the drilling of Shen-5 expressing “enthusiasm” and calling Shenandoah “a tremendous resource potential.”¹¹⁴ As noted, findings from Shen-5 validated this enthusiasm. At the same time, Mr. Gwin also emphasized that appraisal work would be ongoing even after Shen-5: “The results of Shen-5 have put as [sic] in a position where we clearly expect to drill Shen-6 later this year and continue with an appraisal program there.”¹¹⁵ He also emphasized the variation in how potential development might ultimately play out: “Something like a Shenandoah is obviously

¹¹⁰ *Id.* ¶ 108(c).

¹¹¹ *Id.* ¶ 108(d).

¹¹² *Id.* ¶ 108(d).

¹¹³ Anadarko Petroleum Corporation, FQ4 2016 Earnings Call Transcript, February 1, 2017, p. 15 (APC-01751627).

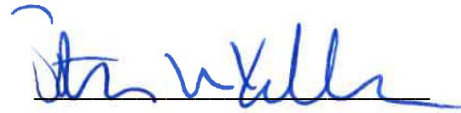
¹¹⁴ Regan Report ¶ 108(e).

¹¹⁵ *Id.*

tremendous resource potential, but the development plan could be from a relatively smaller spar opportunity to maybe multiple spars to something bigger that you might pursue.”¹¹⁶

138. Investors would understand from these statements that while Shen-5 was expected to provide encouraging results, which it ultimately did with over 1,000 feet of net pay, Anadarko was still far from reaching a final investment decision, and considerable uncertainty remained around sanctioning. As described in my Affirmative Report, investors were aware that Shen-4 encountered salt and that the sidetrack encountered less pay than Shen-2. They were also aware that there was faulting in the Shenandoah basin. Investors further understood that after the results of Shen-4 were released, Anadarko was unlikely to invest in Shenandoah at then-prevailing oil prices. Commentary from analysts demonstrates an understanding that the Shenandoah project had not been sanctioned and would not be sanctioned at the oil prices at that time.

Dated: January 25, 2023



¹¹⁶ *Id.*

Appendix A

Curriculum Vitae



PETER W. KELLER

BERKELEY RESEARCH GROUP, LLC

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Direct: 646.651.4735

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pkeller@thinkbrg.com

SUMMARY

Experienced energy professional involved in oil & gas finance since 1978 and utility/power finance since 2003. Strong skills in transaction negotiation, origination and structuring in both the institutional and corporate banking sectors. Arranged/participated in transactions across the energy spectrum from E&P, midstream, refining & pipeline to nuclear, fossil & renewable generation, to electric transmission & distribution. Strategic advisor to numerous investor owned utilities across the United States. Headed the team responsible for a majority of BNY Mellon's investment grade debt capital markets business. Deep background in industry analysis, policy support, risk management, relationship management and marketing.

Active in various national organizations including the American Gas Association, the Edison Electric Institute, the Nuclear Energy Institute/Institute of Nuclear Power Operations Senior Executive Leadership Program, the Nuclear Decommissioning Trust Conference, the Nuclear Energy Institute and the Utility Pension Fund Study Group. A speaker at industry conferences, workshops and hearings. Drove significant growth over many years across BNY Mellon's largest portfolio outside of financial institutions; successful as a team leader and as the relationship lead on a number of franchise relationships.

EXPERIENCE

BERKELEY RESEARCH GROUP, LLC, New York, NY

2015 - present

Managing Director - Energy

Joined BRG in 2015 as part of the firm's expansion of its energy practice. Work includes strategic advisory on energy financing, transactional advisory, asset/portfolio optimization, project evaluation/implementation, risk assessment and mitigation, climate risk/energy transition assessments, regulatory support/testimony and expert witness/litigation support.

THE BANK OF NEW YORK / BNY MELLON, New York, NY

1998 - 2014

Managing Director, Energy Group Head (2007-2014)

Oversight of a \$7.4 billion portfolio comprised of the Bank's franchise energy relationships across the U.S. including oil & gas & midstream & oilfield serve and essentially all investor owned public utilities and the TVA. Significant portfolio revenues based on credit/capital markets/syndication income and a broadly diversified group of product cross-sells. Management responsibility for a team of senior relationship officers and analytical, marketing and support staff. Responsibilities included strategic planning, general management, credit oversight/approval, marketing initiatives, divisional budgeting and risk analyses. Responsible for BNY Mellon's activities in the Nuclear Decommissioning Trust (NDT) sector and coordinated the Bank's sponsorship of the annual Nuclear Decommissioning Trust Conference. BNY Mellon was the first bank to structure an NDT, has a dominant position as an NDT trustee and manages a significant portfolio of NDT assets.



Managing Director, Energy Division Head (2005-2007)

Energy East and West Divisions consolidated into a single division under my management. Consolidated group included over 130 relationships in the public utility, oil & gas, oilfield service, refining & marketing, petrochemical and mining sectors. Managed a team of ten relationship officers and support staff. Responsibilities included strategic planning, general management, credit oversight/approval, marketing initiatives, divisional budgeting and risk analyses.

Managing Director, Energy East Division Head (2004-2005)

Promoted from Vice President to Managing Director, responsibilities as noted below.

Vice President, Energy East Division Head (2003-2004)

Promoted to assume management of the Bank's Energy East Division, which included over 65 relationships in the public utility, oil & gas, refining & marketing and mining sectors generating revenues in excess of \$40 million annually. Managed a team of four relationship officers and support staff.

Vice President, Oil & Gas Division (1998-2003)

Hired to expand the bank's relationships in the exploration and production sector; also active in the oilfield service and pipeline/diversified sectors. Focus on reserve-based lending and longer-term non-recourse asset financing.

RPI INSTITUTIONAL SERVICES, INC., New York, NY

1981 - 1998

Principal

RPI provided investment management and advisory services to corporate pension funds and university endowments. As a principal I managed discretionary and non-discretionary accounts handling all phases of locating, evaluating, negotiating, and structuring direct oilfield investments. Originated complex financing for numerous acquisitions, primarily in the offshore Gulf of Mexico, from international major oil companies.

In addition, was a principal in RPI's predecessor firm, Resource Programs, Inc., that advised a broad range of investment bank, commercial bank, brokerage, insurance company and corporate clients on oil and gas direct investments. In that role, managed the field review activities of petroleum engineers, geologists and accountants and provided detailed reports on the technical and administrative capabilities of companies reviewed for our clients.

MIDLANTIC NATIONAL BANK, Newark, NJ

1975-1981

Corporate Banking Officer

Corporate lender in the National Division of the Corporate Bank, responsible for all clients and prospects in the Midwest U.S. (Minneapolis east through Ohio). Participated in formulating and implementing the bank's Energy Lending Program which involved developing and expanding a portfolio of reserve-based credit facilities with clients in Texas, Colorado and Oklahoma. Traveled extensively and generated significant expansion in relationships. Organized and conducted the bank's annual in-house credit training program in years 1977-1979 (a twelve to fifteen week classroom course in financial analysis and commercial lending).



LITIGATION/ARBITRATION CONSULTING

Georgia Firefighters' Pension Fund, et al v. Anadarko Petroleum, R.A Walker, Robert G. Gwin, Robert P. Daniels and Ernest A. Leyendecker. Expert witness reports, rebuttal, depositions.
July 2021 -

SPM NAM, et al v. SM Energy. Expert witness reports, rebuttals, deposition preparation for testimony.
October 2019 – November 2020

LCT Capital, LLC v. NGL Energy Partners LP and NGL Energy Holdings, LLC. Expert witness reports, rebuttal reports, deposition & testimony.
May 2017 - June 2018, July 2021 -

Michael Christopher v. ArcLight Capital Holdings, LLC, et al. JAMS Arbitration. Deposition.
October 2016.

EDUCATION

Williams College, Williamstown, Massachusetts
1975 - BA, History / Environmental Studies / Economics

New York University, New York, New York
Courses at the Graduate School of Business Administration

AFFILIATIONS

President of the Board - Episcopal Charities of New York
Advisory Committee Member & Grants Policy Committee Chair- Episcopal Charities of New York

Task Force for Puerto Rico and the Caribbean Recovery
Episcopal Diocese of New York

Member
Priory of The Most Venerable Order of St. John

Joint Civilian Orientation Conference, JCOC 83

Marine Corps Executive Forum

Chair of the Search Committee
Former Member of the Vestry
Treasurer
Member of the Investment Committee
St. Matthew's Episcopal Church, Bedford, New York



Member of the Bedell Fund Commission

Foundation established to strengthen the Episcopal Church through funding of major capital projects and clergy support

Member,

Former President, Bedford Village Chowder & Marching

Not-for-profit community organization supporting community youth organizations and activities and providing college scholarships in Bedford, New York

Former Member of the Vestry

Clerk of the Vestry

The Church of St. Mary the Virgin, Chappaqua, New York

Trustee Emeritus

Former Treasurer

Hebron Academy, Hebron, Maine

Former Class Agent

Capital Campaign Special Gifts Committee Member

Williams College, Williamstown, Massachusetts



Peter Keller Structured Financings BNY/BNY Mellon

Burlington Resources	Lost Creek Gathering Company \$66MM 10 year non-recourse financing, backed by a ship-or pay contract, of a 122 mile pipeline to connect the Madden Field in WY to the CIG mainline.	2000
Coastal Corp.	Aruba Coker Trust \$359MM 7.5 year securitized synthetic lease financing for the installation of a delayed coker at the Aruba refinery	2000
Coastal Oil & Gas	Santa Rita Capital (Coastal Oil & Gas and The University of Texas) \$350MM 6 year non-recourse volumetric production payment, supported by Texas reserves of Coastal Corporation.	1999
El Paso Corp.	Mustang Investors, LLC \$970MM 5 year off balance sheet, minority interest, tax driven financing in a bankruptcy remote SPV formed to monetize certain pipeline and financial assets of El Paso	2002
Murphy Oil Corp.	MOCL/CMB SPV \$575MM 5 year amortizing structured financing, involving a forward sales contract supporting Murphy's acquisition of Beau Canada Exploration, Ltd.	2001
Ocean Energy, Inc.	Ocean Gantor Trust \$137MM 5 year lease financing of a (at the time the largest ever) spar-based floating production platform at Nansen/East Breaks Block 602 in the deepwater Gulf of Mexico	2001
TOSCO Corp.	Tosco Trust 2000-E \$600MM 5 year special purpose grantor trust financing the acquisition of 391 Exxon/Mobil stations from Exxon (to satisfy DOJ issues connected to Exxon's acquisition of Mobil).	2000
Transocean Sedco Forex	Discoverer Enterprise Hull Financing \$290MM non-recourse hull financing for a fifth generation double hulled dynamically positioned, dual derrick deepwater drillship, backed by 10 year full-payout lease from BP Americas	1999
Valero Energy Corp.	Valero Coker Trust \$290MM 6 year synthetic lease financing the installation of a delayed coker at Valero's Texas City, TX	2002

Peter Keller Reserve Based Borrowing Base Financings BNY/BNY Mellon

Cabot Oil & Gas	end date reflects transition to balance sheet loan	1998-2003
EEX Corp.	acquired by Newfield Exploration in 2003	2000-2003
Forest Oil	end date reflects transition to balance sheet loan, subs merged with Sabine	2000-2004
Houston Exploration	sub. of Brooklyn Union Gas, acquired by Forest Oil in 2007	1999-2002
Newfield Exploration	end date reflects transition to balance sheet loan	2000-2003
Westport Resources	acquired by Kerr-McGee in 2004	2001-2004

Peter Keller Institutional Acquisitions/Project Financings RPI Institutional Services

Institutional investors in RPI-originated transactions: Bard College, Frigidare Pension Trust, GE Investment Corp., GMAMCo, General Motors Hourly Employees Trust, General Motors Salaried Employees Trust, Owens-Illinois Pension Trust, The University of Texas System

Seller	Assets/Fields	
Amoco	Port Hudson Field	1993
ARCO	Chandeleur Sound Block 25, 99 well offshore package	1989
	Chandeleur Sound Blocks 40 & 41 offshore package	1994
Chevron	Main Pass Block 35, originally 134 wells	1993
Chevron	Main Pass block extension	1994
Chevron	South Bosco, multiple onshore fields	1993
Chevron	Black Bay Complex, 8 fields, 90 wells	1992
Various	Anschutz Ranch East	1994
	Midway-Sunset	
	South Pass, multiple blocks	
	Spraberry Package	
W&T Offshore	West Delta 30 Field, Producing Property/Seismic Delineated Exploration	1994

Prior Testimony of Peter Keller

1. SPM NAM, et al v. SM Energy. Expert witness reports, rebuttals, deposition preparation for testimony (October 2019 – November 2020)
2. LCT Capital, LLC v. NGL Energy Partners LP and NGL Energy Holdings, LLC. Expert witness reports, rebuttal reports, deposition & testimony (May 2017 - June 2018, July 2021-ongoing)
3. Michael Christopher v. ArcLight Capital Holdings, LLC, et al. JAMS Arbitration. Deposition (October 2016).

Appendix B - Materials Relied Upon

1. Expert Reports

1. Expert Report of Peter Keller, November 9, 2022
2. Expert Report of Bjorn I. Steinholt, CFA, November 9, 2022
3. Expert Report of Robert Merrill, Ph.D., November 9, 2022
4. Expert Report of D. Paul Regan, CPA/CFF, November 9, 2022

2. Depositions

5. Deposition of Bjorn Steinholt, December 21, 2022
6. Deposition of Robert Merrill, December 7, 2022
7. Deposition of Paul Regan, January 20, 2023

3. Securities and Exchange Commission Filings

3.1. Anadarko Petroleum Corporation

8. Anadarko Petroleum Corporation, 2014 10-K, February 20, 2015 (APC-01751751)

4. Investor Conference Transcript/Presentation

4.1. Anadarko Petroleum Corporation

9. Anadarko Petroleum Corporation, Q3 2013 Earnings Call Transcript, November 5, 2013
10. Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, (APC-01753577)
11. Anadarko Petroleum Company, Investor Conference Presentation, March 4, 2014, (APC-01753996)
12. Anadarko Petroleum Corporation, Q1 2014 Earnings Call Transcript, May 6, 2014 (APC-01751460)
13. Anadarko Petroleum Corporation, FQ2 2014 Earnings Call Transcript, July 30, 2014
14. Anadarko Petroleum Corporation, FQ2 2015 Earnings Call Transcript, July 29, 2015
15. Anadarko Petroleum Corporation, Investor Conference Transcript, October 28, 2015 (APC-01751438)

16. Anadarko Petroleum Company, UBS Global Oil and Gas Conference Transcript, May 24, 2016 (APC-01753704)
17. Anadarko Petroleum Corporation, J.P. Morgan Energy Equity Investor Conference Transcript, June 28, 2016 (APC-01753717)
18. Anadarko Petroleum Corporation, FQ4 2016 Earnings Call Transcript, February 1, 2017, (APC-01751627)

4.2. Other Shenandoah Partners

19. ConocoPhillips, Q3 2014 Earnings Call Transcript, October 30, 2014

5. Operations Reports

20. Anadarko Petroleum Corporation, Q2 2014 Operations Report, July 29, 2014
21. Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015, (APC-00002814-2830)

6. Analyst Reports

22. Guggenheim, "APC – BUY - Increasing Price Target to \$115 on Multiple Exploration and Development Catalysts," April 1, 2013
23. Global Hunter Securities, "Another GOM success at Phobos," April 25, 2013
24. RBC Capital Markets, "Anadarko Petroleum Corp. The Plan Has Come Together," March 16, 2017, p.3 (APC-01334517)
25. Raymond James, "1Q17 Quick Take: Anadarko Reports Solid First Quarter," May 2, 2017, (APC-01553905)
26. RBC Capital Markets, "Market Focus May Be Elsewhere," May 2, 2017, (APC-01379628)
27. UBS, "Anadarko Petroleum Corp. Large Exploration Expense Drives 1Q17 EPS/CFPS Miss but EBITDX Beats; Maintains 2017 Guidance," May 3, 2017, (UBS00071254)

7. Industry Documents

28. American Association of Petroleum Geologists, "Discovery Thinking: The Gulf of Mexico Advantage," April 7, 2014, <https://www.aapg.org/videos/discovery-thinking/articleid/37096/ernie-leyendecker-discovery-thinking-the-gulf-of-mexico-advantage>

29. C. Mark Pearson, Coloradans for Responsible Energy Development, "The Seven Steps of Oil and Natural Gas Extraction," <https://www.cred.org/seven-steps-of-oil-and-natural-gas-extraction/>
30. NS Energy, "Shenandoah Field Development," (APC-01753939)
31. Offshore, Shenandoah gets the go-ahead in the deepwater Gulf of Mexico, August 26, 2021.
32. Offshore Engineer, Hunting's Titanium Stress Joints for Beacon Offshore Energy's Shenandoah Project, August 16, 2022

8. Academic Literature

33. Abotaleb Abdelazim, et al., "Successful approach to mitigate the asphaltenes precipitation problems in ESP oil wells," *Journal of Petroleum Exploration and Production Technology* (2022), <https://doi.org/10.1007/s13202-021-01335-7>

9. News Article

34. Yahoo Finance, "Anadarko Announces Shenandoah Appraisal Well Encounters More Than 1,000 Net Feet of Oil Pay," March 19, 2013, <https://finance.yahoo.com/news/anadarko-announces-shenandoah-appraisal-well-200500390.html>
35. Businesswire, "Chevron Announces the Successful Appraisal of the Anchor Discovery in the Deepwater Gulf of Mexico," October 29, 2015
36. Chevron, "Chevron Sanctions Anchor Project in the Deepwater U.S. Gulf of Mexico," December 12, 2019